

AMENDMENTS TO THE CLAIMS

Applicant submits below a complete listing of the current claims, including marked-up claims with insertions indicated by underlining and deletions indicated by strikeouts and/or double bracketing. This listing of claims replaces all prior versions, and listings, of claims in the application:

1-21. (Canceled)

22. (Currently amended) A system for classifying material, comprising:

a classification module to receive x-ray fluorescence information representing x-rays fluoresced from the material, to receive optical emissions information representing optical emissions emitted from the material, and to classify the material based on at least one of the x-ray fluorescence information and the optical emissions information, the classifying including reducing the number of potential classifications by analyzing only a first one of two types of emissions: the detected x-rays or the detected optical emissions; and selecting one of the reduced number of classifications by analyzing only a second one of the two types of emissions that was not analyzed in reducing the number of potential classifications.

23. (Previously presented) The system of claim 22, further comprising:

an x-ray detector to detect the x-rays fluoresced from the material;
an optical emissions collector to detect the optical emissions emitted from the material.

24. (Previously presented) A system for classifying a piece of material, wherein a number of potential classifications are available, comprising:

one or more inputs to receive x-ray fluorescence information representing x-rays fluoresced from the material and optical emissions information representing optical emissions emitted from the material; and

means for classifying the material based on the x-ray fluorescence information and the optical emissions information including means for reducing the number of potential classifications by analyzing only a first one of two types of emissions: the detected x-rays or the detected optical emissions and means for selecting one of the reduced number of classifications by analyzing only a second one of the two types of emissions that was not analyzed in reducing the number of potential classifications.

25. (Previously presented) A computer-readable medium having computer-readable signals stored thereon that define instructions that, as a result of being executed by a computer, control the computer to perform a method of classifying material, wherein a number of potential classifications are available, the method comprising acts of:

- (A) detecting x-rays fluoresced from the material;
- (B) detecting optical emissions emitted from a plasma resulting from a vaporization of a portion of the material; and
- (C) classifying the material based on the detected x-rays and the detected optical emissions, including acts of
 - (1) reducing the number of potential classifications by analyzing only a first one of two types of emissions: the detected x-rays or the detected optical emissions; and
 - (2) selecting one of the reduced number of classifications by analyzing only a second one of the two types of emissions that was not analyzed in the act (C)(1).

46. (Currently amended) A method of classifying material, the method comprising acts of:

- (A) applying an electrical discharge to vaporize a portion of the material to produce a plasma;
- (B) detecting optical emissions emitted from the plasma;
- (C) detecting x-rays fluoresced from the material; and
- (D) classifying the material based on the detected x-rays and/or the detected optical emissions;

~~The method claim 45,~~ wherein a number of potential classifications are available, wherein the act (D) comprises[[:]]

- (1) reducing the number of potential classifications by analyzing only a first one of two types of emissions: the detected x-rays or the desired detected optical emissions; and
- (2) selecting one of the reduced number of classifications by analyzing only a second one of the two types of emission that was not analyzed in the act (D)(1).

47-61. (Canceled)